

**In the Abstract**

The invention includes a technique for efficient multi-slice image acquisition with black blood contrast in cardiac imaging such that MR data is acquired in each R-R interval of a cardiac cycle. The technique includes applying a non-selective inversion pulse, followed by a re-inversion pulse that is slice-selective over a region encompassing a plurality of slice selections.

The inversion and re-inversion pulses are applied in each R-R interval. Execution of a series of RF excitation pulses in each R-R interval is timed such that signal from blood is near a null point before data acquisition.